

**REMARKS**

In an Advisory Action dated August 18, 2008, the Examiner maintains the rejection set forth in the final Office Action of March 27, 2008. Claims 1-6, 9-13, 20 and 23-28 are thus pending and stand rejected. Claims 11 and 26 are cancelled. Applicants respectfully request reconsideration of the present application in view of the above amendments and following remarks.

Applicants acknowledge that when claims to the elected species are found allowable, claims withdrawn to a non-elected species that require all the limitations of the allowable claims will be considered for rejoinder. In the event of the rejoinder, the restriction requirement will be withdrawn and the rejoined claims will be fully examined for patentability in accordance with 37 CFR 1.104.

**Amendments to the Claims**

Applicants present the following amendments for the sole purpose of expediting prosecution of the pending claims. It is understood that such amendments are made without prejudice, and do not amount to Applicants' acceptance of the Office Action's rejections. Applicants reserve the right to prosecute any of the former forms of the claims in a continuing application.

Applicants amend claim 1 to recite that the biocompatible tissue implant includes at least one tissue fragment contains a plurality of viable cells that can migrate from the tissue fragment. Applicants also amend claim 1 to recite that the at least one tissue fragment is associated with the isolated biological tissue slice. Support for this amendment can be found throughout the published specification, for example at paragraphs 0009, 0040-0043, and 0044-0045, as well as Examples 1 and 3. Claim 11 is cancelled.

Applicants amend claims 12 and 13 to correct dependency from claim 11 to claim 1.

Applicants amend claim 20 to recite that the tissue slice is capable of acting as a source of viable cells. Applicants also amend claim 20 to recite that the biocompatible tissue implant also comprises at least one minced tissue fragment containing a plurality of viable cells that can migrate from the tissue fragment. Applicants further amend claim 20 to recite that the at least one tissue fragment is associated with the isolated biological tissue slice. Support for these amendments can be found throughout the published specification, for example at paragraphs 0009, 0012, 0040-0043, and 0044-0045 as well as Example 1. Claim 26 is cancelled.

Applicants amend claim 27 to correct dependency from claim 26 to claim 20.

No new matter is added.

***Rejections Pursuant to 35 U.S.C. §102***

The Examiner rejects claims 1-6, 9, 11, 12, 20, and 23-28 pursuant to 35 U.S.C. §102(b) as being anticipated by US Patent No. 6,485,723 to Badylak et al. ("Badylak"). Applicants respectfully disagree with the Examiner's rejection.

***Independent Claim 1***

As amended, claim 1 recites a biocompatible tissue implant for repairing a tissue injury or defect. The claimed three-part implant includes (a) an isolated biological tissue slice, (b) at least one minced tissue fragment, and (c) a retaining element. The at least one minced tissue fragment is associated with the isolated biological tissue slice. For example, minced tissue fragments can be added to an adhesive used to secure the implant or alternatively to a gel-like carrier applied to the implant. (See, e.g., paragraph 0040). The tissue slice is capable of acting as a cell source that allows viable cells to migrate out of the tissue slice. Similarly, the at least one minced tissue fragment also contains a plurality of viable cells that can migrate from the tissue fragment. Finally, a retaining element secures the tissue slice, and thereby the entire three-part implant, to the tissue site.

The use of minced tissue fragments in combination with an isolated biological tissue slice provides enhanced cellular integration and tissue repair. (See, e.g., Example 3 at paragraphs 0131-0134). In Applicants' Example 3, minced tissue fragments were used in combination with cartilage plugs. Histological examination of the cartilage plugs confirmed that cells from both the minced tissue and the cartilage plugs were migrating out of the tissues into surrounding spaces and were responsible for bonding the entity together.

In the final Office Action of March 27, 2008, the Examiner asserts that Badylak "discloses a biocompatible tissue implant comprising a naturally occurring biocompatible tissue slice." The Examiner further asserts that "the tissue slice [includes] an effective amount of viable cells" and that "viable cells can migrate out of the tissue." However, as previously amended, claim 1 recites an isolated biological tissue slice, *harvested from healthy tissue*, that is *capable of acting as a cell source*. Badylak fails to teach or suggest a biological tissue slice harvested from healthy tissue that is capable of acting as a cell source. Badylak discloses a tissue graft construct that is formed from a

submucosa matrix material. (See Badylak at col. 2, lines 63-66 and col. 3, lines 59-61). First, the submucosal tissue that is processed into the submucosa matrix material is not harvested from healthy tissue, but is merely “a plentiful by-product of commercial meat production operations.” (See Badylak at col. 2, lines 25-29). Second, the submucosa matrix material disclosed by Badylak is not capable of acting as a cell source. The submucosa matrix material is produced by processing vertebrate intestinal material. (See Badylak at col. 4, lines 1-14). Badylak further discloses that “the submucosal tissue is preferably sterilized prior to use in cell culture applications, however nonsterile submucosal tissue can be used if antibiotics are included in the cell culture system.” However, Badylak also discloses that the resulting submucosa matrix is substantially acellular after processing. (See Badylak at col. 2, lines 30-33). Thus, although Badylak teaches that the matrix can be seeded with cells prior to implantation, the source of the cells is not the acellular submucosa matrix. Badylak therefore fails to disclose an isolated biological tissue slice, harvested from healthy tissue, that is capable of acting as a cell source, as required by claim 1.

Furthermore, as amended, claim 1 also recites that the biocompatible tissue implant includes at least one *minced tissue fragment* containing viable cells that can migrate from the tissue fragment. Badylak fails to teach or suggest an implant that includes at least one minced tissue fragment. Badylak merely discloses isolated and cultured *cells* that can be seeded onto the submucosa matrix. (See Badylak at col. 3, lines 13-28). Isolated and cultured *cells* are very different from minced tissue *fragments* that contain viable cells. Thus, cells obtained through cell culture, even when seeded onto the submucosa matrix disclosed by Badylak, are not equivalent to the claimed tissue implant.

Accordingly, independent claim 1 distinguishes over Badylak and represents allowable subject matter. Claims 2-6, 9, 12 and 28 distinguish over the cited art at least because they depend from claim 1.

#### Independent Claim 20

Claim 20 recites a method for repairing tissue injury or defect. As amended, the claimed method comprises providing a biocompatible implant for tissue repair including (i) an isolated biological tissue slice harvested from healthy tissue that is capable of acting as a source of viable cells, and (ii) at least one minced tissue fragment containing a plurality of viable cells that can migrate from the tissue fragment. The at least one minced tissue fragment is associated with the isolated biological tissue slice. For example minced tissue fragments can be added to an adhesive

used to secure the implant or alternatively to a gel-like carrier applied to the implant. (See, e.g., paragraph 0040).

As discussed above with regard to claim 1, Badylak fails to teach or suggest a biological tissue slice harvested from healthy tissue that is capable of acting as a source of viable cells or at least one minced tissue fragment containing viable cells. Accordingly, independent claim 20 distinguishes over Badylak and represents allowable subject matter. Claims 23-25 and 27 distinguish over the cited art at least because they depend from claim 1.

***Rejections Pursuant to 35 U.S.C. §103***

The Examiner rejects claim 13 pursuant to 35 U.S.C. §103(a) as being unpatentable over Badylak. Applicants respectfully disagree with the Examiner's rejection.

At the outset, Applicants note that claim 13 incorporates the recitations independent claim 1 and thus distinguishes over Badylak for at least the reasons discussed above with respect claim 1. In particular, Badylak fails to teach or suggest a biological tissue slice harvested from healthy tissue that is capable of acting as a cell source or an implant that includes at least one minced tissue fragment from which viable cells can migrate.

Claim 13 recites that the at least one minced tissue fragment has a particle size in the range of about  $0.1\text{ mm}^3$  to about  $2\text{ mm}^3$ . The Examiner admits that Badylak fails to disclose "a tissue fragment having particles [sic] size in the range of about  $0.1\text{ mm}^3$  to about  $2\text{ mm}^3$ ." The Examiner argues that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the fragment size." However, Badylak fails to teach or suggest an implant that includes even at least one tissue fragment, much less a tissue fragment of the claimed size range. Thus, even the general conditions of claim 13 are lacking because Badylak fails to provide any teaching or suggestion of tissue fragments. Therefore, it would not have been obvious based on the teachings of Badylak for one of ordinary skill in the art to modify the particle size of a tissue fragment to obtain a minced tissue fragment of the claimed particle size range.

Accordingly, claim 13 distinguishes over Badylak and represents allowable subject matter.

CONCLUSION

In conclusion, Applicants submit that all pending claims are now in condition for allowance, and allowance thereof is respectfully requested. The Examiner is encouraged to telephone the undersigned attorney for Applicants if such communication is deemed to expedite prosecution of this application.

A Petition for an Extension of Time is required to be submitted at this time, Applicants hereby petition under 37 CFR 1.136(a) for an extension of time for as many months as are required to ensure that the above-identified application does not become abandoned.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 141449, under Order No. 22956-235.

Dated: August 27, 2008

Respectfully submitted,

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